

IN THE CLAIMS:

No Admission. The claims presented below are labeled pursuant to the request of the Patent and Trademark Office for convenience in examination. The cancellation of a claim or reference to a claim as "currently amended" is neither an admission nor an acknowledgement that the claim was altered for any reason related to patentability. None have been so altered.

1-15. (Cancelled).

16. (Currently Amended) A method of treating a human subject having a wound, site-specific downregulation of connexin 43 protein expression for a therapeutic or a cosmetic purpose which comprises administering to the wound a connexin 43 at least one anti-sense polynucleotide, whereby to a connexin 43 protein expression is downregulated to a site on or within a patient at which said downregulation is required.

17. (Currently Amended) A method of reducing neuronal cell death resulting which would otherwise result from a neuronal insult to a human subject, specific site in the brain, spinal cord, or optic nerve of a patient which comprises the step of administering to the site of the neuronal insult a connexin 43 at least one anti-sense polynucleotide, whereby to a connexin 43 protein to said site to downregulate expression is downregulated of a connexin protein at and immediately adjacent said site.

18. (Currently Amended) A method according to claim 17 in which said anti-sense polynucleotide is administered to reduce neuronal loss due to physical trauma wherein the neuronal insult is to the brain, spinal cord or optic nerve.

19. (Currently Amended) A method according to claim 17 in which said anti-sense polynucleotide is administered in a sufficient amount to downregulate connexin 43 expression of said connexin protein for at least 24 hours post-administration.

20. (Currently Amended) A method of promoting wound healing in a human patient which comprises the step of administering to the wound an amount of a connexin 43 ~~at least one~~ anti-sense polynucleotide effective to downregulate connexin 43 expression ~~to a connexin protein~~ ~~to said wound to downregulate expression a connexin 43 protein at and immediately adjacent the~~ ~~site of said wound.~~

21. (Currently Amended) A method according to claim 16 or 20 in which the wound is the result of trauma.

22. (Original) A method according to claim 21 in which trauma is a burn.

23. (Currently Amended) A method according to claim 16 or 20 in which the wound is the result of a surgery.

24. (Currently Amended) A method of treating a human subject to reduce ~~reducing~~ inflammation associated with ~~as part of treating~~ a wound or associated with a tissue subjected to a physical trauma which comprises the step of administering to the wound or tissue an amount of a connexin 43 ~~at least one~~ anti-sense polynucleotide effective to downregulate a connexin 43 ~~expression~~ ~~protein to, or proximate to, said wound or tissue.~~

25. (Currently Amended) A method according to claim 24 in which ~~said anti-sense~~ polynucleotide is administered to reduce inflammation due to the tissue subjected to physical trauma is selected from the group consisting of ~~to the~~ brain, spinal cord and ~~or~~ optic nerve.

26. (Currently Amended) A method of decreasing scar formation ~~in patient who has~~ ~~suffered following~~ a wound to a human subject which comprises the step of administering to the wound an amount of a connexin 43 ~~at least on~~ anti-sense polynucleotide effective to downregulate a connexin 43 ~~expression~~ ~~protein to said wound to downregulate expression of a~~ ~~connexin protein at and immediately adjacent the site of said wound.~~

27-42 (Cancelled)

43. (Previously Presented) A method according to claim 16, wherein said anti-sense polynucleotide is an oligodeoxynucleotide.

44. (Currently Amended) A method according to any of claims 16, 17, 20, 24, or 26 ~~claim 16~~, wherein said connexin protein comprises the amino acid sequence coded for by SEQ ID NO. 12a human connexin 43.

45. (Currently Amended) A method according to any of claims 16, 17, 20, 24, or 26 ~~claim 16~~, wherein said anti-sense polynucleotide is present in a composition comprising ~~formulation together with~~ a pharmaceutically acceptable carrier or vehicle.

46. (Currently Amended) A method according to claim 45, wherein said composition ~~formulation~~ is suitable for topical administration.

47. (Currently Amended) A method according to claim 45, wherein said composition is formulated to provide sustained release of the antisense polynucleotide ~~formulation contains polynucleotides to one connexin protein only~~.

48. (Currently Amended) A method according to claim 45, wherein said composition is formulated to provide sustained release of the antisense polynucleotide over at least 24 ~~hours formulation contains polynucleotides to more than one connexin protein~~.

49. (Currently Amended) A method according to claim ~~44~~ 48, wherein the anti-sense polynucleotide is present in a composition comprising a pharmaceutically acceptable carrier or vehicle formulated for topical administration ~~in which one of the connexin proteins to which polynucleotides are directed is human connexin 43~~.

50. **(Currently Amended)** A method according to claim ~~44~~ 48, wherein the anti-sense polynucleotide is in the form of an impregnated dressing ~~which includes polynucleotides directed to at least two of connexin-26, connexin-31.1, connexin-32, and connexin-36 and connexin-43.~~

51. **(Previously Presented)** A method according to claim 45, wherein the pharmaceutically acceptable carrier or vehicle is, or includes, a gel.

52. **(Previously Presented)** A method according to claim 51 in which the gel is a nonionic polyoxyethylene-polyoxypropylene copolymer gel.

53. **(Currently Amended)** A method according to claim 45, wherein the formulation composition further includes a surfactant ~~or urea to assist with polynucleotide penetration into a cell.~~

54. **(Previously Presented)** A method of decreasing cell death in a tissue of a mammal comprising contacting the cells with an effective amount of a connexin 43 antisense polynucleotide.

55. **(Previously Presented)** The method of claim 54, wherein said connexin 43 antisense polynucleotide is an oligodeoxynucleotide.

56. **(Currently Amended)** The method of claim ~~55~~ 54, wherein said oligodeoxynucleotide is an unmodified phosphodiester oligomer.

57. **(Currently Amended)** The method of ~~claim~~ any of claims 16, 17, 20, 24, 26 or 54, wherein said connexin 43 antisense polynucleotide binds to at least a portion of a connexin 43 mRNA.

58. **(Currently Amended)** The method of claim ~~57~~ 54, wherein said connexin 43 antisense polynucleotide is exactly complementary to at least a portion of said connexin 43 mRNA.

59. **(Currently Amended)** The method of claim 5754, wherein said connexin 43 antisense polynucleotide is not exactly complementary to at least a portion of a connexin 43 mRNA.

60. **(Currently Amended)** The method of ~~claim~~ any of claims 16, 17, 20, 24, 26 or 54, wherein said connexin 43 antisense polynucleotide is about 12 to about 40 nucleotides in length.

61. **(Currently Amended)** The method of ~~claim~~ any of claims 16, 17, 20, 24, 26 or 54, wherein said connexin 43 antisense polynucleotide is about 30 nucleotides in length.

62. **(Currently Amended)** The method of ~~claim~~ any of claims 16, 17, 20, 24, 26 or 54, wherein said connexin 43 antisense polynucleotide comprises SEQ ID NO: 1.

63. **(Currently Amended)** The method of ~~claim~~ any of claims 16, 17, 20, 24, 26 or 54, wherein said connexin 43 antisense polynucleotide comprises SEQ ID NO: 2.

64. **(Currently Amended)** The method of ~~claim~~ any of claims 16, 17, 20, 24, 26 or 54, wherein said connexin 43 antisense polynucleotide comprises SEQ ID NO: 3.

65. **(Previously Presented)** The method of claim 54, wherein said connexin 43 is a human connexin 43.

66. **(Previously Presented)** The method of claim 54, wherein said mammal is a human.

67. **(Previously Presented)** The method of claim 54, wherein said tissue is skin.

68. **(Currently Amended)** The method of claim 24 or 54, wherein said tissue is neural tissue.

69. **(Currently Amended)** The method of claim 24 or 54, wherein said tissue is brain.

70. **(Currently Amended)** The method of claim 24 or 54, wherein said tissue is spinal cord.

71. **(Currently Amended)** The method of claim 24 or 54, wherein said tissue is connective tissue.

72. **(Currently Amended)** The method of any of claims 54-56, 65, 66 or 67 ~~54-70 or 71~~, wherein said connexin 43 antisense polynucleotide is administered to a wound.

73. **(Previously Presented)** The method of claim 72, wherein said wound is a surgical wound.

74. **(Previously Presented)** The method of claim 72, wherein said wound is a burn.

75. **(Currently Amended)** The method of any of claims 54-56, 65, 66 or 67 ~~54-70 or 71~~, wherein said connexin 43 antisense polynucleotide is administered to a site of inflammation.

76. **(Currently Amended)** The method of any of claims 54-56, 65, 66 or 67 ~~54-70 or 71~~, wherein said connexin 43 antisense polynucleotide is disposed in a topical formulation.

77. **(Previously Presented)** The method of claim 76, wherein said topical formulation comprises a gel.

78. **(Previously Presented)** The method of claim 77, wherein said gel is a pluronic gel.

79. **(Currently Amended)** The method of any of claims 54-56, 65, 66 or 67 ~~54-70 or 71~~, wherein said connexin 43 antisense polynucleotide is administered by syringe.

Please add the following new claims:

80. **(New)** The method of any of claims 54-56, 58, 59 or 65-67, wherein said connexin 43 antisense polynucleotide is administered as a gel.

81. **(New)** The method of any of claim 57, wherein said connexin 43 antisense polynucleotide is administered as a gel.

82. **(New)** The method of any of claim 60, wherein said connexin 43 antisense polynucleotide is administered as a gel.

83. (New) The method of any of claim 61, wherein said connexin 43 antisense polynucleotide is administered as a gel.

84. (New) The method of any of claim 62, wherein said connexin 43 antisense polynucleotide is administered as a gel.

85. (New) The method of any of claim 63, wherein said connexin 43 antisense polynucleotide is administered as a gel.

86. (New) The method of any of claim 64, wherein said connexin 43 antisense polynucleotide is administered as a gel.

87. (New) The method of any of claim 68, wherein said connexin 43 antisense polynucleotide is administered as a gel.

88. (New) The method of any of claim 69, wherein said connexin 43 antisense polynucleotide is administered as a gel.

89. (New) The method of any of claim 70, wherein said connexin 43 antisense polynucleotide is administered as a gel.

90. (New) The method of any of claim 71, wherein said connexin 43 antisense polynucleotide is administered as a gel.

91. (New) The method of any of claims 54-56, 58, 59 or 65-67, wherein said connexin 43 antisense polynucleotide is administered as a dressing.

92. (New) The method of any of claim 57, wherein said connexin 43 antisense polynucleotide is administered as a dressing.

93. (New) The method of any of claim 60, wherein said connexin 43 antisense polynucleotide is administered as a dressing.

94. (New) The method of any of claim 61, wherein said connexin 43 antisense polynucleotide is administered as a dressing.

95. (New) The method of any of claim 62, wherein said connexin 43 antisense polynucleotide is administered as a dressing.

96. (New) The method of any of claim 63, wherein said connexin 43 antisense polynucleotide is administered as a dressing.

97. (New) The method of any of claim 64, wherein said connexin 43 antisense polynucleotide is administered as a dressing.

98. (New) The method of any of claim 68, wherein said connexin 43 antisense polynucleotide is administered as a dressing.

99. (New) The method of any of claim 69, wherein said connexin 43 antisense polynucleotide is administered as a dressing.

100. (New) The method of any of claim 70, wherein said connexin 43 antisense polynucleotide is administered as a dressing.

101. (New) The method of any of claim 71, wherein said connexin 43 antisense polynucleotide is administered as a dressing.